

# INDIUM GALLIUM NITRIDE SEPARATE CONFINEMENT HETEROSTRUCTURE LIGHT EMITTING DEVICES

Yu-Chen Shen

Mira S. Misra

## ABSTRACT OF THE DISCLOSURE

A III-nitride light emitting device including a substrate, a first conductivity type layer overlying the substrate, a spacer layer overlying the first conductivity type layer, an active region overlying the spacer layer, a cap layer overlying the active region, and a second conductivity type layer overlying the cap layer is disclosed. The active region includes a quantum well layer and a barrier layer containing indium. The barrier layer may be doped with a dopant of first conductivity type and may have an indium composition between 1% and 15%. In some embodiments, the light emitting device includes an InGaN lower confinement layer formed between the first conductivity type layer and the active region. In some embodiments, the light emitting device includes an InGaN upper confinement layer formed between the second conductivity type layer and the active region. In some embodiments, the light emitting device includes an InGaN cap layer formed between the upper confinement layer and the active region.